



Ifremeria nautiliei, a mixotrophic feeder on the bottom of the ocean

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The distribution of deep-sea vent communities is limited by steep temperature, salinity and pH gradients. Around the vent, the fauna shows characteristic niche partitioning for different groups of animals and overwhelming numerical dominance of a few species.

In the Pacific Ocean, vent fauna has adapted to an unstable habitat, characterised by high magnitude and high frequency variations in the magmatic or tectonic activity. One of the most extended and active hydrothermal fields of the Manus Spreading Center, Western Pacific, is the hydrothermal field 1, Vienna Woods. The black snail *Ifremeria nautiliei*, belongs to the vent community of the “Vienna Woods” hydrothermal field, located at a depth of 2500 m and is among the most abundant macroorganisms living at the site. Alongside *Alviniconcha hessleri*, *I. nautiliei* reaches the highest density (500-700 adults/m²) in the vicinity of active hydrothermal vents where sulfide and methane emissions mix with sea water to form the ‘shimmering water’ zone, at ambient pressures of 250 bars. Shell microstructures, minor element contents and stable isotope compositions of the *I. nautiliei* organisms, analysed in this study, provide information about local adaptation, niche characteristics, specific metabolic activity and food sources during its lifetime.